

ABSTRACT

A technique is provided for protecting an interlayer insulating film formed of an organic low dielectric constant material from any damage applied
5 in a semiconductor process, and for attaining the decrease leak current in the interlayer insulating film, resulting in the improvement of reliability of a semiconductor device. The semiconductor device according to the present invention has an organic
10 insulating films (5, 26, 28) having openings. The organic insulating films (5, 26, 28) have modified portions (5a, 26a, 28a) facing the openings. The modified portions (5a, 26a, 28a) contains fluorine atoms and nitrogen atoms. The concentration of the
15 fluorine atoms in the modified portions (5a, 26a, 28a) is lower than the concentration of the nitrogen atoms. The above-mentioned modified layers (5a, 26a, 28a) protect the semiconductor device from the damage applied in the semiconductor process, while
20 suppressing the corrosion of the conductors embedded in the openings.